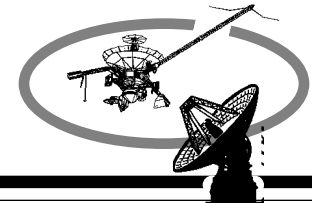# Standards and Protocol Development

JPL

- ## Overall Objectives

  – Provide management and leadership for NASA participation in the International Consultative Committee for Space Data Systems (CCSDS)

  – Develop and test effective protocols for digital ground and spacecraft subsystem communications.

- ## Goals and Products

  – CCSDS Recommendation Books

  cover end-to-end space data communications, from error correction codes to high-level internet protocols.

  – Support protocol development and test

  current thrust: Extend the Internet into space

  Space Communications Protocol Standards (SCPS)

  Joint NASA/DOD/NSA project to develop internet protocols to work in space with noisy links and long propagation delays

  Protocol-X

  progressively reliable store-and-forward file transfer system for multiple, non-duplex or long delay communication links, such as between the earth and interplanetary orbiters and landers.

Standards Committees

CCSDS   ISO

User Applications

| SuperMOCA |
| SCPS - FP |
| SCPS - TP |

Protocol - X

| SCPS - SP |
| SCPS - NP |

| CCSDS Space Link |
| CCSDS Modulation |
| CCSDS RF |

Protocol R&D

SCPS frozen CCSDS specs, reference software	SCPS CCSDS Red-4 book, ISO-DIS.2 reference software	SCPS - ISO Std CCSDS Blue-1	Protocol X Red books	Protocol X ISO Std, CCSDS Blue

FY97	FY98	FY99	FY00	FY01	FY02	FY03